LISTING OF THE CLAIMS

Claims 1-30 (cancelled)

Claim 31 (Currently amended): A method of fabricating an integrated ferroelectric/CMOS structure comprising the steps of:

(a) forming at least one complementary metal oxide semiconductor (CMOS) device on a semiconductor wafer;

(b) forming a ferroelectric capacitor over said CMOS device, said ferroelectric capacitor comprising at least a ferroelectric layer and an oxygen source layer in proximity to a conductive electrode layer, wherein said oxygen source layer is a metal oxide having the formula MO_x, where M is a noble metal, a non-noble metal or mixtures and alloys thereof and x is from about 0.03 to about 3, and is capable of at least partially decomposing at temperatures below 700°C;

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(c) forming wiring levels on said ferroelectric capacitor at temperatures below 450°C; and

(d) annealing ~~the structure~~ the at least said wiring levels, said ferroelectric capacitor, and said at least one complementary metal oxide semiconductor (CMOS) device on said semiconductor wafer, at a temperature between 300°C and 700°C ~~so as~~ to at least partially decompose the oxygen source layer to release oxygen into the ferroelectric capacitor.

Claim 32 (Original): The method of Claim 31 wherein said CMOS device includes a transistor region and a semiconductor substrate.

Claim 33 (Original): The method of Claim 32 wherein said semiconductor substrate is a semiconducting material selected from the group consisting of Si, Ge, SiGe, GaAs, InAs, InP, other III/V compounds and organic semiconductors.

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Claim 34 (Currently amended): The method of Claim ~~31~~ 48 wherein said conductive electrode layer and said conductive counterelectrode layer are composed of the same or different conductive material selected from the group consisting of noble metals, noble metal oxides, conductive oxides and mixtures and multilayers thereof.

Claim 35 (Original): The method of Claim 31 wherein said ferroelectric material is a perovskite-type oxide, a compound containing a pyrochlore structure, a potassium dihydrogen phosphate, phosphates of rubidium, cesium or arsenic and mixtures or multilayers thereof.

Claim 36 (Original): The method of Claim 35 wherein said perovskite-type oxide has the formula ABO_3 wherein B is at least one acidic oxide containing a metal from Group IVB, VB, VIB, VIIB, IIIA or IB of the Periodic Table of Elements, and A is an additional cation having a positive formal charge of from about 1 to about 3.

Claim 37 (Original): The method of Claim 36 wherein said perovskite-type oxide is a titanate-based ferroelectric, a manganate-based material, a cuprate-based material, a tungsten-bronze niobate, tantalate or titanate, or a bismuth layered-tantalate, niobate or titanate.

Claim 38 (Original): The method of Claim 37 wherein said perovskite-type oxide is strontium bismuth tantalate, strontium bismuth niobate, bismuth titanate, strontium bismuth tantalate niobate, lead zirconate titanate, lead lanthanum zirconate and compositions thereof modified by a dopant material.

Claim 39 (Cancelled)

Claim 40 (Original): The method of Claim 31 wherein said conductive electrodes are patterned or non-patterned.

Claim 41 (Original): The method of Claim 31 wherein said oxygen source layer is patterned or non-patterned.

Claim 42 (Original): The method of Claim 31 wherein said annealing step is carried out at a temperature of from about 350° to about 700°C for a time period of from about 1 minute to about 4 hours.

Claim 43 (Original): The method of Claim 42 wherein said annealing step is carried out at a temperature of from about 350° to about 500°C for a time period of from about 1 minute to about 10 minutes.

Claim 44 (Original): The method of Claim 31 wherein said annealing step is carried out in an inert gas atmosphere that may optionally be mixed with an oxidizing gas.

Claim 45 (Original): The method of Claim 31 wherein said ferroelectric capacitor is planar or non-planar.

Claim 46 (Cancelled)

Claim 47 (Original): The method of Claim 31 wherein said ferroelectric layer of said ferroelectric capacitor is replaced with a high-epsilon layer having a dielectric constant of 20 or greater.

Claim 48 (Newly added): The method of Claim 31 where said ferroelectric capacitor further comprises a conductive counterelectrode layer.

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Claim 49 (Newly added): A method of fabricating an integrated ferroelectric/CMOS structure comprising the steps of:

(a) forming at least one complementary metal oxide semiconductor (CMOS) device on a semiconductor wafer;

(b) forming a ferroelectric capacitor over said CMOS device, said ferroelectric capacitor comprising at least a ferroelectric layer and an oxygen source layer in proximity to a conductive electrode layer, wherein said oxygen source layer is a metal oxide having the formula MO_x, where M is a noble metal, a non-noble metal or mixtures and alloys thereof and x is from about 0.03 to about 3, and is capable of at least partially decomposing at temperatures below 700°C; and

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(c) forming wiring levels on said ferroelectric capacitor at temperatures below 450°C, wherein said partially decomposing occurs during ferroelectric deposition, top electrode deposition, optional encapsulant deposition, BEOL process or device operation so as to release oxygen into the ferroelectric capacitor.